

Well Name: **Dutton 21-22**

Surface Location: Dutton 11-22 Pad Sec.22-T4N-R67W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

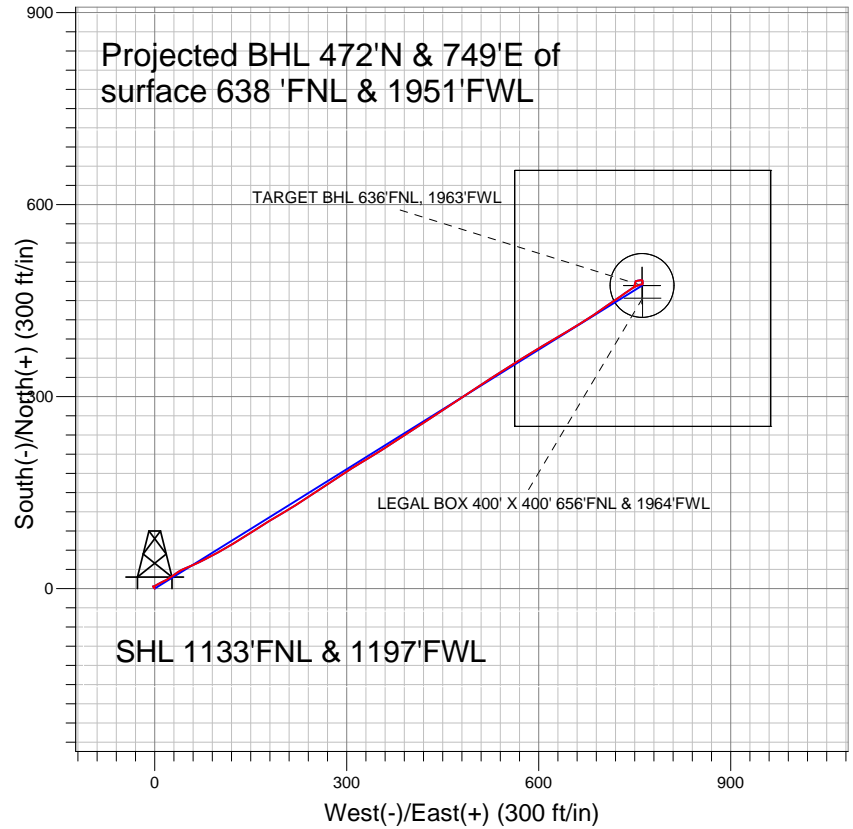
Ground Elevation: 4870.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1353525.70	3172344.04	40° 18' 7.848 N	104° 52' 55.488 W	

Original Well Elev WELL @ 4883.0ft (Original Well Elev)

## HRM Resources, LLC Weld County, CO

Projected BHL 472'N & 749'E of  
surface 638 'FNL & 1951'FWL

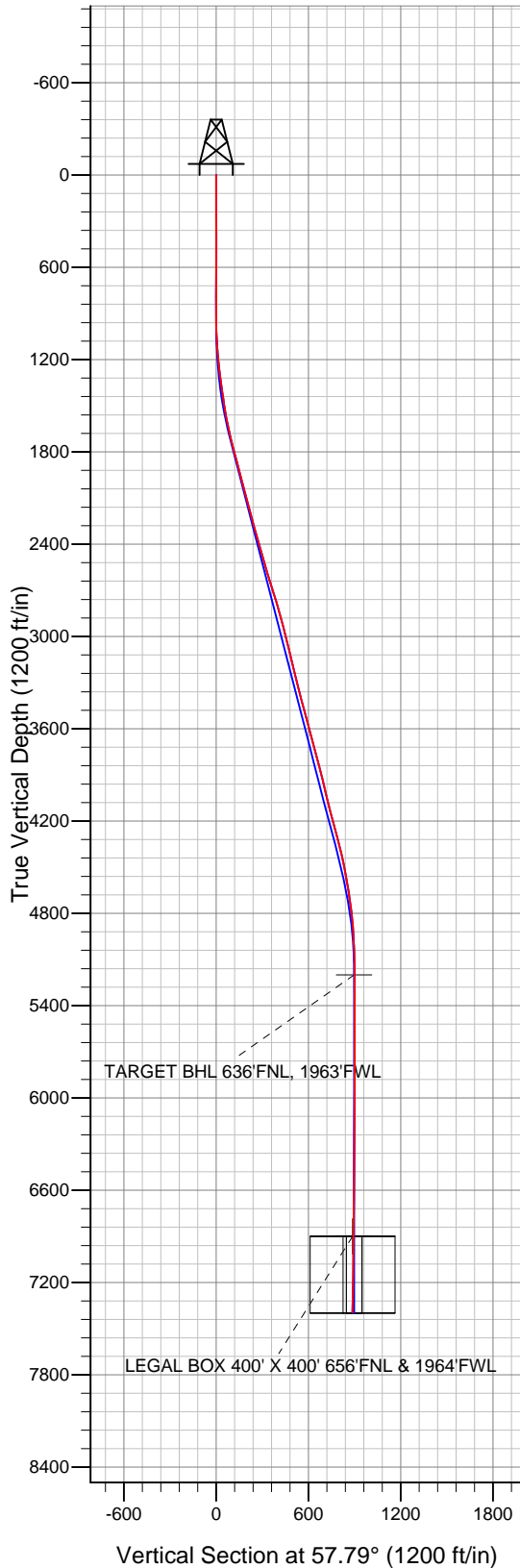


### LEGEND

- Dutton 21-22, Wellbore #1, Plan #1 (10-13-10) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7503'MD & 7394'TVD @ 885' VS  
1.8 deg Inc 201.2 deg AZ



Project: SEC.22-T4N-R67W  
Site: Dutton 11-22 Pad Sec.22-T4N-R67W  
Well: Dutton 21-22  
Plan: Wellbore #1



## **Directional**

### **HRM Resources, LLC Weld County, CO**

**SEC.22-T4N-R67W**

**Dutton 11-22 Pad Sec.22-T4N-R67W**

**Dutton 21-22**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**22 November, 2010**

Survey										
	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Survey	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	679.0	0.60	323.00	679.0	2.8	-2.1	-0.3	0.09	0.09	0.00
	773.0	0.40	317.20	773.0	3.5	-2.7	-0.4	0.22	-0.21	-6.17
	866.0	0.70	140.10	866.0	3.3	-2.5	-0.4	1.18	0.32	-190.43
	959.0	0.30	126.90	959.0	2.7	-2.0	-0.2	0.44	-0.43	-14.19
	1,052.0	2.80	55.70	1,051.9	3.8	0.1	2.1	2.92	2.69	-76.56
	1,144.0	4.50	60.80	1,143.8	6.9	5.1	8.0	1.88	1.85	5.54
	1,237.0	6.40	64.10	1,236.3	10.9	13.0	16.8	2.07	2.04	3.55
	1,329.0	7.30	57.80	1,327.7	16.3	22.5	27.7	1.27	0.98	-6.85
	1,423.0	8.10	53.10	1,420.8	23.4	32.9	40.3	1.08	0.85	-5.00
	1,516.0	9.30	66.80	1,512.8	30.3	45.0	54.3	2.57	1.29	14.73
	1,609.0	11.40	66.60	1,604.2	36.9	60.4	70.8	2.26	2.26	-0.22
1,701.0	13.10	62.60	1,694.1	45.3	78.0	90.1	2.06	1.85	-4.35	

<b>Company:</b>	HRM Resources, LLC Weld County, CO	<b>Local Co-ordinate Reference:</b>	Well Dutton 21-22
<b>Project:</b>	SEC.22-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4883.0ft (Original Well Elev)
<b>Site:</b>	Dutton 11-22 Pad Sec.22-T4N-R67W	<b>MD Reference:</b>	WELL @ 4883.0ft (Original Well Elev)
<b>Well:</b>	Dutton 21-22	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,794.0	14.80	61.10	1,784.4	55.9	97.7	112.5	1.87	1.83	-1.61	
1,886.0	14.80	58.90	1,873.3	67.7	118.1	136.0	0.61	0.00	-2.39	
1,979.0	14.70	58.60	1,963.3	80.0	138.3	159.7	0.14	-0.11	-0.32	
2,073.0	15.20	56.70	2,054.1	92.9	158.8	183.9	0.74	0.53	-2.02	
2,165.0	14.60	59.20	2,143.0	105.5	178.8	207.5	0.96	-0.65	2.72	
2,258.0	15.20	58.90	2,232.9	117.8	199.4	231.5	0.65	0.65	-0.32	
2,351.0	15.70	58.80	2,322.5	130.6	220.6	256.2	0.54	0.54	-0.11	
2,443.0	15.20	55.20	2,411.2	143.9	241.1	280.7	1.18	-0.54	-3.91	
2,536.0	16.20	56.70	2,500.7	158.0	262.0	305.9	1.16	1.08	1.61	
2,630.0	17.10	57.20	2,590.8	172.7	284.5	332.8	0.97	0.96	0.53	
2,722.0	18.30	57.60	2,678.4	187.8	308.1	360.8	1.31	1.30	0.43	
2,815.0	16.10	58.60	2,767.3	202.3	331.4	388.3	2.39	-2.37	1.08	
2,908.0	16.10	58.10	2,856.6	215.8	353.4	414.1	0.15	0.00	-0.54	
3,001.0	14.60	56.60	2,946.3	229.1	374.1	438.7	1.67	-1.61	-1.61	
3,094.0	13.00	55.20	3,036.6	241.5	392.5	460.8	1.76	-1.72	-1.51	
3,186.0	13.50	58.80	3,126.2	253.0	410.2	481.9	1.05	0.54	3.91	
3,279.0	14.30	58.20	3,216.4	264.7	429.2	504.3	0.87	0.86	-0.65	
3,372.0	14.20	54.80	3,306.6	277.3	448.3	527.1	0.91	-0.11	-3.66	
3,465.0	14.60	55.50	3,396.7	290.5	467.3	550.2	0.47	0.43	0.75	
3,557.0	15.20	57.30	3,485.6	303.6	487.0	573.9	0.82	0.65	1.96	
3,650.0	14.50	56.70	3,575.5	316.6	507.0	597.7	0.77	-0.75	-0.65	
3,743.0	14.40	57.40	3,665.5	329.2	526.5	620.9	0.22	-0.11	0.75	
3,836.0	15.30	58.10	3,755.4	341.9	546.6	644.8	0.99	0.97	0.75	
3,929.0	14.60	56.30	3,845.3	354.9	566.8	668.7	0.90	-0.75	-1.94	
4,022.0	14.00	58.80	3,935.4	367.2	586.2	691.7	0.93	-0.65	2.69	
4,115.0	13.50	59.90	4,025.7	378.5	605.2	713.8	0.61	-0.54	1.18	
4,208.0	14.20	58.80	4,116.0	389.9	624.3	736.1	0.80	0.75	-1.18	
4,301.0	15.00	59.90	4,206.0	401.8	644.5	759.5	0.91	0.86	1.18	
4,394.0	15.30	57.70	4,295.8	414.4	665.3	783.8	0.70	0.32	-2.37	
4,486.0	14.00	56.60	4,384.8	427.0	684.8	807.1	1.44	-1.41	-1.20	
4,579.0	11.40	54.40	4,475.5	438.6	701.7	827.5	2.84	-2.80	-2.37	
4,672.0	10.20	55.30	4,566.8	448.6	715.9	844.9	1.30	-1.29	0.97	
4,764.0	8.80	56.30	4,657.6	457.1	728.5	860.1	1.53	-1.52	1.09	
4,857.0	7.60	54.30	4,749.6	464.7	739.4	873.3	1.33	-1.29	-2.15	
4,951.0	5.80	59.80	4,843.0	470.7	748.6	884.3	2.03	-1.91	5.85	
5,043.0	3.60	71.90	4,934.7	473.9	755.3	891.7	2.61	-2.39	13.15	
5,136.0	1.70	80.40	5,027.6	475.1	759.5	895.8	2.08	-2.04	9.14	
5,229.0	1.20	78.80	5,120.5	475.5	761.8	898.0	0.54	-0.54	-1.72	
5,308.4	0.65	14.41	5,200.0	476.1	762.7	899.1	1.37	-0.69	-81.06	
TARGET BHL 636'FNL, 1963'FWL										
5,322.0	0.70	359.10	5,213.5	476.2	762.7	899.2	1.37	0.35	-112.84	
5,415.0	0.60	350.10	5,306.5	477.3	762.6	899.7	0.15	-0.11	-9.68	
5,508.0	0.60	356.50	5,399.5	478.3	762.5	900.1	0.07	0.00	6.88	
5,601.0	0.30	334.60	5,492.5	479.0	762.4	900.4	0.37	-0.32	-23.55	
5,693.0	0.80	3.60	5,584.5	479.8	762.3	900.8	0.61	0.54	31.52	
5,786.0	0.60	357.20	5,677.5	481.0	762.3	901.4	0.23	-0.22	-6.88	
5,879.0	0.40	306.50	5,770.5	481.6	762.1	901.5	0.50	-0.22	-54.52	
5,972.0	0.50	260.30	5,863.5	481.8	761.4	901.0	0.39	0.11	-49.68	
6,065.0	0.50	273.30	5,956.5	481.7	760.6	900.3	0.12	0.00	13.98	
6,158.0	0.60	273.00	6,049.5	481.8	759.7	899.6	0.11	0.11	-0.32	
6,251.0	0.40	263.30	6,142.5	481.8	758.9	898.9	0.23	-0.22	-10.43	
6,344.0	0.50	266.20	6,235.5	481.7	758.2	898.2	0.11	0.11	3.12	
6,436.0	0.40	275.10	6,327.5	481.7	757.4	897.6	0.13	-0.11	9.67	
6,529.0	0.40	248.50	6,420.5	481.6	756.8	897.0	0.20	0.00	-28.60	

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6,622.0	0.60	262.60	6,513.5	481.4	756.0	896.3	0.25	0.22	15.16
6,715.0	0.50	253.40	6,606.5	481.2	755.2	895.5	0.14	-0.11	-9.89
6,807.0	0.50	256.00	6,698.5	481.0	754.4	894.7	0.02	0.00	2.83
6,901.0	0.60	248.70	6,792.5	480.8	753.5	893.8	0.13	0.11	-7.77
6,993.0	0.60	263.70	6,884.5	480.5	752.6	892.9	0.17	0.00	16.30
7,008.5	0.58	260.59	6,899.9	480.5	752.4	892.8	0.25	-0.14	-20.10
<b>TARGET CIRCLE 636'FNL,1963'FWL</b>									
7,008.5	0.58	260.58	6,900.0	480.5	752.4	892.8	0.25	-0.14	-20.85
<b>LEGAL BOX 400' X 400' 656'FNL &amp; 1964'FWL</b>									
7,087.0	0.50	241.30	6,978.5	480.3	751.8	892.1	0.25	-0.10	-24.57
7,180.0	0.60	204.70	7,071.5	479.6	751.2	891.2	0.39	0.11	-39.35
7,272.0	1.20	191.80	7,163.4	478.3	750.8	890.2	0.68	0.65	-14.02
7,365.0	1.70	190.30	7,256.4	475.9	750.4	888.6	0.54	0.54	-1.61
7,459.0	1.80	201.20	7,350.4	473.2	749.6	886.4	0.37	0.11	11.60
7,503.0	1.80	201.20	7,394.3	471.9	749.1	885.3	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_